

NRC PERIODIC BRIEFING ON NEW REACTOR ISSUES

NUCLEAR REGULATORY COMMISSION

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Oral Statement: The NGNP in Perspective

Submitted By:

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Entergy Nuclear

Good morning, Mr. Chairman and Commissioners. My name is Dan Keuter, and I am the Vice-President, Planning & Innovations with Entergy Nuclear. In that capacity I am responsible for evaluating and supporting the implementation of new technologies and concepts that can enhance the performance of our current nuclear fleet. My responsibilities also include the evaluation of new nuclear technologies beyond the advanced light water reactors currently under active consideration by the industry.

Entergy Nuclear is the second largest nuclear owner/operator in the U.S. We understand the demands associated with as well as the benefits of nuclear energy. As a company with a substantial vested interest in nuclear power, it is important that I begin my remarks about the Next Generation Nuclear Plant (NGNP) by reiterating the broad priorities that we use to guide our actions.

Our first priority, as you might expect is maintaining the safety and excellent operational performance of the current Light Water Reactor (LWR) fleet. There can be no compromise in this regard.

Our second priority is the deployment of the next generation of Advanced Light Water Reactors or ALWRs. The industry's interest in these deployments is considerable and laying the foundation for nuclear deployments through use of Part 52 is essential to any future growth of nuclear energy in the private sector.

Third on our list of priorities is achieving a resolution to high-level waste disposal. Our industry has adopted, by necessity, what I believe to be an interim solution to high-level waste. A permanent solution, such as a deep geologic depository is necessary if growth in nuclear power over the long term is to be realized.

Our fourth priority is development of the Next Generation Nuclear Plant (NGNP) and associated technologies. Although we currently place the NGNP fourth in

our priorities, its importance and our interest in seeing it move forward in a timely manner should not be diminished. We genuinely believe that it is an essential element of the future energy mix in the U.S. and efforts to ensure its timely development should be initiated or continued as the case may be.

Fifth on our list of priorities is GNEP – or at least the domestic spent fuel reprocessing element of the GNEP program. The reduction in waste volume, in particular the long-lived waste products, coupled with the recovery of unused fuel make development the GNEP spent fuel reprocessing technologies a logical step forward if commercial nuclear power is to be sustainable well into the future. Because implementation of GNEP will impact the commercial nuclear industry, we support a collaborative effort between government and industry to ensure viable deployment of the technologies.

Our perspectives on priorities notwithstanding, we believe that development and subsequent deployment of the NGNP technologies is vital to our nation's energy security. Within our service territory, particularly along the Gulf Coast and in the Mississippi River Corridor, there are numerous industrial facilities that consume large amounts of energy in the manufacturing of their products. In these facilities, a large portion of the incoming feedstock (primarily fossil fuels) is consumed in powering the processes used in the manufacturing of the products. Our evaluations indicate that the characteristics and capabilities of the high-temperature gas reactor are well suited for such an application and could reduce and perhaps even eliminate the consumption of incoming feedstock to power the processes. This preservation of feedstock would serve to reduce our nation's reliance on foreign energy imports and could substantially reduce the carbon footprint of these industrial facilities.

Entergy has a clear and vested interest in the future of nuclear power. With respect to the NGNP, we see a potential business model where we as an owner/operator might co-locate an NGNP type plant at industrial facility to supply the process heat, hydrogen, and/or electricity needed to power their processes. Our interest in the NGNP technologies, however, goes beyond the market opportunity. The security of our nation's energy supply and the threat of global climate change make it imperative that viable alternative energy sources such as nuclear be actively developed and utilized. Our interest in the NGNP is shared by a broader community of end users that goes beyond the traditional utility industry. Because the characteristics of the high-temperature gas reactor are well suited for meeting the process heat needs in large chemical, petrochemical, and refining processes, there is a growing interest in the NGNP from firms within these industries. Over the past year, representatives from firms in these industries have met periodically with nuclear technology developers and nuclear operators to discuss and assess the commercial viability of the NGNP and to outline strategies for bringing the technologies to the marketplace. A core group of companies, comprised of technology developers, reactor designers and suppliers, nuclear operators, and large industrial energy users, has come together with the intention of forming an industry alliance to support the development and eventual commercialization of the NGNP technologies.

Members of this emerging alliance have, in fact, already drafted a Memorandum of Understanding (MOU) as the first step toward the formation of a legal entity. This MOU is under internal review by the individual member companies and should be signed by the interested parties within the near future. Members of the emerging Alliance have met individually with additional firms in the chemical, petrochemical, and refining industries to discuss the NGNP and its possible application in their respective operations. The level of interest is growing and it is likely that other companies will opt to participate in the Alliance as the effort progresses.

Our CEO, Wayne Leonard, in his presentation at the 2007 Annual Shareholder meeting, noted the potential of high-temperature gas-cooled reactor technology in traditionally non-nuclear applications. His message in the presentation highlighted the fact that there are solutions to our energy needs that are compatible with our environmental stewardship – but we have to make it happen. I believe his message has relevance for us today.

We, at Entergy, as well as the members of the emerging Alliance, acknowledge the challenges we face in achieving our goal of commercializing the NGNP technologies. One of the more obvious challenges that lies ahead is the technology development that must be achieved in order to support commercialization. This development includes such things as fuel development and high temperature materials development to name but two. Another challenge we face is the need for industrial infrastructure to support such activities as fuel supply, large component fabrication, plant design, etc. We appreciate that in this area of infrastructure, the competition for resources will be considerable.

Perhaps the greatest challenge we face is the licensing effort that will be required for the NGNP, particularly if we are to achieve the target deployment date of 2018. We anticipate that the effort required for licensing the NGNP technologies will go beyond that required for the ALWR technologies. This is largely because the current set of requirements used in implementing the regulations have been established for light water reactor technologies. Although a substantial effort will be necessary to establish gas-cooled reactor specific requirements, it is our belief that such a strategy is the preferred course of action. This strategy will result in the establishment of clear bases for licensing subsequent deployments of the NGNP technologies in the commercial sector.

In conclusion, Entergy believes that the NGNP technologies are an essential element in our energy mix of the future particularly as we move forward toward a hydrogen economy. Thank you and I look forward to any questions you may have.



The NGNP – An Essential Energy Source

February 20, 2008

Dan Keuter

Vice President, Planning & Innovations
Entergy Nuclear

The Priorities

- Current Fleet Operations
- Advance Light Water Reactor (AWLR) Deployments
- High-Level Waste Resolution
- Next Generation Nuclear Plant (NGNP)
- Global Nuclear Energy Partnership (GNEP)

Entergy's Perspective

NGNP is Essential Energy Source:

- Helps Reduce Foreign Energy Imports
- Reduces Greenhouse Gas (GHG) Emissions
- Preserve Fossil Fuel for Future Generations
- Nuclear Applications Beyond Electricity Production for Use in Chemical, Petrochemical and Fertilizer Industries
 - High Temperature Process Heat
 - Hydrogen Production
- Long Term Fuel Supply for Hydrogen Economy

Emerging Industry Alliance

- Interest in NGNP Shared by Others:
 - Technology Developers
 - Reactor Designers & Vendors
 - Petrochemical & Chemical Companies
- Representative Have Been Meeting for a Year
 - Development Needs
 - Development Path
- Memorandum of Understanding (MOU) Amongst Parties Being Developed

Alliance Acknowledges Challenges

- Technology Development
 - Fuel Development and Qualification
 - High Temperature Materials
- Industrial Infrastructure
 - Fuel Supply
 - Large Component Fabrication
 - Plant Design and Construction
- Licensing
 - Regulations for Gas Reactors
 - Dedicated Staff Resources